

SEQUENCE LISTING

<110> Makielski, Jonathan C.
Ye, Bin
Ackerman, Michael J.

<120> Sodium Channel Alpha Subunit Variants

<130> 960296.98989

<150> 60/401,018

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<160> 21

<170> PatentIn version 3.2

<210> 1

<211> 6172

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(6048)

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Val His Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn	
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Gln Val Ala Thr Phe Lys Gly	Trp Met Asp Ile Met	Tyr Ala Ala	
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Ser	Pro	Ala	Val	Gly	Ile	Leu	Phe	Phe	Thr	Thr	Tyr	Ile	Ile	Ile	
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tcc	ttc	ctc	atc	gtg	gtc	aac	atg	tac	att	gcc	atc	atc	ctg	gag	5319
Ser	Phe	Leu	Ile	Val	Val	Asn	Met	Tyr	Ile	Ala	Ile	Ile	Leu	Glu	
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Asn	Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Thr	Glu	Pro	Leu	Ser	Glu	
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gac	gac	ttc	gat	atg	ttc	tat	gag	atc	tgg	gag	aaa	ttt	gac	cca	5409
Asp	Asp	Phe	Asp	Met	Phe	Tyr	Glu	Ile	Trp	Glu	Lys	Phe	Asp	Pro	
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Glu	Ala	Thr	Gln	Phe	Ile	Glu	Tyr	Ser	Val	Leu	Ser	Asp	Phe	Ala	
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Asp	Ala	Leu	Ser	Glu	Pro	Leu	Arg	Ile	Ala	Lys	Pro	Asn	Gln	Ile	
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Ser	Leu	Ile	Asn	Met	Asp	Leu	Pro	Met	Val	Ser	Gly	Asp	Arg	Ile	
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His Cys Met Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly	
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gag tct ggg gag atg gac gcc ctg aag atc cag atg gag gag aag	5634
Glu Ser Gly Glu Met Asp Ala Leu Lys Ile Gln Met Glu Glu Lys	
1865 1870 1875	
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Phe Met Ala Ala Asn Pro Ser Lys Ile Ser Tyr Glu Pro Ile Thr	
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acc aca ctc cgg cgc aag cac gaa gag gtg tcg gcc atg gtt atc	5724
Thr Thr Leu Arg Arg Lys His Glu Glu Val Ser Ala Met Val Ile	
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Gln Arg Ala Phe Arg Arg His Leu Leu Gln Arg Ser Leu Lys His	
1910 1915 1920	
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Glu Asp Ala Pro Glu Arg Glu Gly Leu Ile Ala Tyr Val Met Ser	
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Glu Asn Phe Ser Arg Pro Leu Gly Pro Pro Ser Ser Ser Ser Ile	
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Thr Ser Asp Asn Leu Gln Val Arg Gly Ser Asp Tyr Ser His Ser	
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Ser Ile Val	
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Glu Glu Ala Pro Arg Pro Gln Leu Asp Leu Gln Ala Ser Lys Lys Leu
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Pro Asp Leu Tyr Gly Asn Pro Pro Gln Glu Leu Ile Gly Glu Pro Leu
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Glu Asp Leu Asp Pro Phe Tyr Ser Thr Gln Lys Thr Phe Ile Val Leu
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Asn Lys Gly Lys Thr Ile Phe Arg Phe Ser Ala Thr Asn Ala Leu Tyr
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Val Leu Ser Pro Phe His Pro Ile Arg Arg Ala Ala Val Lys Ile Leu
 115 120 125

Val His Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn
 130 135 140

Cys Val Phe Met Ala Gln His Asp Pro Pro Pro Trp Thr Lys Tyr Val
 145 150 155 160

Glu Tyr Thr Phe Thr Ala Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile
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Leu Ala Arg Gly Phe Cys Leu His Ala Phe Thr Phe Leu Arg Asp Pro
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Trp Asn Trp Leu Asp Phe Ser Val Ile Ile Met Ala Tyr Thr Thr Glu
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Phe Val Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu
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Arg Ala Leu Lys Thr Ile Ser Val Ile Ser Gly Leu Lys Thr Ile Val
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Gly Ala Leu Ile Gln Ser Val Lys Lys Leu Ala Asp Val Met Val Leu
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Thr Val Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe
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Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn
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Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu
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Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr
305 310 315 320

Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro
325 330 335

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Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu
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370 375 380

Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly
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Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr
405 410 415

Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys
420 425 430

Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu
435 440 445

Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser
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Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys
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Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr
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Asp Ser Ile Ile Val Ile Leu Ser Leu Met Glu Leu Gly Leu Ser Arg
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Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe
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Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile Ile
820 825 830

Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile
835 840 845

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850 855 860

Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His
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930 935 940

Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln
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Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr
965 970 975

Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro
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Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro
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Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg
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115 120 125
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260 265 270	
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Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn	
275 280 285	
ggc acc aac ggc tcc gtg gag gcc gac ggc ttg gtc tgg gaa tcc ctg	912
Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu	
290 295 300	
gac ctt tac ctc agt gat cca gaa aat tac ctg ctc aag aac ggc acc	960
Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr	
305 310 315 320	
tct gat gtg tta ctg tgt ggg aac agc tct gac gct ggg aca tgt ccg	1008
Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro	
325 330 335	
gag ggc tac cgg tgc cta aag gca ggc gag aac ccc gac cac ggc tac	1056
Glu Gly Tyr Arg Cys Leu Lys Ala Gly Glu Asn Pro Asp His Gly Tyr	
340 345 350	
acc agc ttc gat tcc ttt gcc tgg gcc ttt ctt gca ctc ttc cgc ctg	1104
Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu	
355 360 365	
atg acg cag gac tgc tgg gag cgc ctc tat cag cag acc ctc agg tcc	1152
Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser	
370 375 380	
gca ggg aag atc tac atg atc ttc ttc atg ctt gtc atc ttc ctg ggg	1200
Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly	

385				390				395				400					
tcc	ttc	tac	ctg	gtg	aac	ctg	atc	ctg	gcc	gtg	gtc	gca	atg	gcc	tat	1248	
Ser	Phe	Tyr	Leu	Val	Asn	Leu	Ile	Leu	Ala	Val	Val	Ala	Met	Ala	Tyr		
				405				410				415					
gag	gag	caa	aac	caa	gcc	acc	atc	gct	gag	acc	gag	gag	aag	gaa	aag	1296	
Glu	Glu	Gln	Asn	Gln	Ala	Thr	Ile	Ala	Glu	Thr	Glu	Glu	Lys	Glu	Lys		
				420				425				430					
cgc	ttc	cag	gag	gcc	atg	gaa	atg	ctc	aag	aaa	gaa	cac	gag	gcc	ctc	1344	
Arg	Phe	Gln	Glu	Ala	Met	Glu	Met	Leu	Lys	Lys	Glu	His	Glu	Ala	Leu		
				435				440				445					
acc	atc	agg	ggg	gtg	gat	acc	gtg	tcc	cgt	agc	tcc	ttg	gag	atg	tcc	1392	
Thr	Ile	Arg	Gly	Val	Asp	Thr	Val	Ser	Arg	Ser	Ser	Leu	Glu	Met	Ser		
				450				455				460					
cct	ttg	gcc	cca	gta	aac	agc	cat	gag	aga	aga	agc	aag	agg	aga	aaa	1440	
Pro	Leu	Ala	Pro	Val	Asn	Ser	His	Glu	Arg	Arg	Ser	Lys	Arg	Arg	Lys		
				465				470				475				480	
cgg	atg	tct	tca	gga	act	gag	gag	tgt	ggg	gag	gac	agg	ctc	ccc	aag	1488	
Arg	Met	Ser	Ser	Gly	Thr	Glu	Glu	Cys	Gly	Glu	Asp	Arg	Leu	Pro	Lys		
				485				490				495					
tct	gac	tca	gaa	gat	ggg	ccc	aga	gca	atg	aat	cat	ctc	agc	ctc	acc	1536	
Ser	Asp	Ser	Glu	Asp	Gly	Pro	Arg	Ala	Met	Asn	His	Leu	Ser	Leu	Thr		
				500				505				510					
cgt	ggc	ctc	agc	agg	act	tct	atg	aag	cca	cgt	tcc	agc	cgc	ggg	agc	1584	
Arg	Gly	Leu	Ser	Arg	Thr	Ser	Met	Lys	Pro	Arg	Ser	Ser	Arg	Gly	Ser		
				515				520				525					
att	ttc	acc	ttt	cgc	agg	cga	gac	ctg	ggg	tct	gaa	gca	gat	ttt	gca	1632	
Ile	Phe	Thr	Phe	Arg	Arg	Arg	Asp	Leu	Gly	Ser	Glu	Ala	Asp	Phe	Ala		
				530				535				540					
gat	gat	gaa	aac	agc	aca	gcg	ggg	gag	agc	gag	agc	cac	cgc	aca	tca	1680	
Asp	Asp	Glu	Asn	Ser	Thr	Ala	Gly	Glu	Ser	Glu	Ser	His	Arg	Thr	Ser		
				545				550				555				560	
ctg	ctg	gtg	ccc	tgg	ccc	ctg	cgc	cgg	acc	agt	gcc	cag	gga	cag	ccc	1728	
Leu	Leu	Val	Pro	Trp	Pro	Leu	Arg	Arg	Thr	Ser	Ala	Gln	Gly	Gln	Pro		
				565				570				575					
agt	ccc	gga	acc	tcg	gct	cct	ggc	cac	gcc	ctc	cat	ggc	aaa	aag	aac	1776	
Ser	Pro	Gly	Thr	Ser	Ala	Pro	Gly	His	Ala	Leu	His	Gly	Lys	Lys	Asn		
				580				585				590					
agc	act	gtg	gac	tgc	aat	ggg	gtg	gtc	tca	tta	ctg	ggg	gca	ggc	gac	1824	
Ser	Thr	Val	Asp	Cys	Asn	Gly	Val	Val	Ser	Leu	Leu	Gly	Ala	Gly	Asp		
				595				600				605					
cca	gag	gcc	aca	tcc	cca	gga	agc	cac	ctc	ctc	cgc	cct	gtg	atg	cta	1872	
Pro	Glu	Ala	Thr	Ser	Pro	Gly	Ser	His	Leu	Leu	Arg	Pro	Val	Met	Leu		
				610				615				620					
gag	cac	ccg	cca	gac	acg	acc	acg	cca	tcg	gag	gag	cca	ggc	ggg	ccc	1920	
Glu	His	Pro	Pro	Asp	Thr	Thr	Thr	Pro	Ser	Glu							

Gln Met Leu Thr Ser Gln Ala Pro Cys Val Asp Gly Phe Glu Glu Pro	
645 650 655	
gga gca cgg cag cgg gcc ctc agc gca gtc agc gtc ctc acc agc gca	2016
Gly Ala Arg Gln Arg Ala Leu Ser Ala Val Ser Val Leu Thr Ser Ala	
660 665 670	
ctg gaa gag tta gag gag tct cgc cac aag tgt cca cca tgc tgg aac	2064
Leu Glu Glu Leu Glu Glu Ser Arg His Lys Cys Pro Pro Cys Trp Asn	
675 680 685	
cgt ctc gcc cag cgc tac ctg atc tgg gag tgc tgc ccg ctg tgg atg	2112
Arg Leu Ala Gln Arg Tyr Leu Ile Trp Glu Cys Cys Pro Leu Trp Met	
690 695 700	
tcc atc aag cag gga gtg aag ttg gtg gtc atg gac ccg ttt act gac	2160
Ser Ile Lys Gln Gly Val Lys Leu Val Val Met Asp Pro Phe Thr Asp	
705 710 715 720	
ctc acc atc act atg tgc atc gta ctc aac aca ctc ttc atg gcg ctg	2208
Leu Thr Ile Thr Met Cys Ile Val Leu Asn Thr Leu Phe Met Ala Leu	
725 730 735	
gag cac tac aac atg aca agt gaa ttc gag gag atg ctg cag gtc gga	2256
Glu His Tyr Asn Met Thr Ser Glu Phe Glu Glu Met Leu Gln Val Gly	
740 745 750	
aac ctg gtc ttc aca ggg att ttc aca gca gag atg acc ttc aag atc	2304
Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Thr Phe Lys Ile	
755 760 765	
att gcc ctc gac ccc tac tac tac ttc caa cag ggc tgg aac atc ttc	2352
Ile Ala Leu Asp Pro Tyr Tyr Tyr Phe Gln Gln Gly Trp Asn Ile Phe	
770 775 780	
gac agc atc atc gtc atc ctt agc ctc atg gag ctg ggc ctg tcc cgc	2400
Asp Ser Ile Ile Val Ile Leu Ser Leu Met Glu Leu Gly Leu Ser Arg	
785 790 795 800	
atg agc aac ttg tgc gtg ctg cgc tcc ttc cgc ctg ctg cgg gtc ttc	2448
Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe	
805 810 815	
aag ctg gcc aaa tca tgg ccc acc ctg aac aca ctc atc aag atc atc	2496
Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile Ile	
820 825 830	
ggg aac tca gtg ggg gca ctg ggg aac ctg aca ctg gtg cta gcc atc	2544
Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile	
835 840 845	
atc gtg ttc atc ttt gct gtg gtg ggc atg cag ctc ttt ggc aag aac	2592
Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Asn	
850 855 860	
tac tgc gag ctg agg gac agc gac tca ggc ctg ctg cct cgc tgg cac	2640
Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His	
865 870 875 880	
atg atg gac ttc ttt cat gcc ttc ctc atc atc ttc cgc atc ctc tgt	2688
Met Met Asp Phe Phe His Ala Phe Leu Ile Ile Phe Arg Ile Leu Cys	
885 890 895	

gga gag tgg atc gag acc atg tgg gac tgc atg gag gtg tgc ggg cag Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln 900 905 910	2736
tca tta tgc ctg ctg gtc ttc ttg ctt gtt atg gtc att ggc aac ctt Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu 915 920 925	2784
gtg gtc ctg aat ctc ttc ctg gcc ttg ctg ctc agc tcc ttc agt gca Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ala 930 935 940	2832
gac aac ctc aca gcc cct gat gag gac aga gag atg aac aac ctc cag Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln 945 950 955 960	2880
ctg gcc ctg gcc cgc atc cag agg ggc ctg cgc ttt gtc aag cgg acc Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr 965 970 975	2928
acc tgg gat ttc tgc tgt ggt ctc ctg cgg cag cgg cct cag aag ccc Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro 980 985 990	2976
gca gcc ctt gcc gcc cag ggc cag ctg ccc agc tgc att gcc acc ccc Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro 995 1000 1005	3024
tac tcc ccg cca ccc cca gag acg gag aag gtg cct ccc acc cgc Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg 1010 1015 1020	3069
aag gaa aca cgg ttt gag gaa ggc gag caa cca ggc cag ggc acc Lys Glu Thr Arg Phe Glu Glu Gly Glu Gln Pro Gly Gln Gly Thr 1025 1030 1035	3114
ccc ggg gat cca gag ccc gtg tgt gtg ccc atc gct gtg gcc gag Pro Gly Asp Pro Glu Pro Val Cys Val Pro Ile Ala Val Ala Glu 1040 1045 1050	3159
tca gac aca gat gac caa gaa gaa gat gag gag aac agc ctg ggc Ser Asp Thr Asp Asp Gln Glu Glu Asp Glu Glu Asn Ser Leu Gly 1055 1060 1065	3204
acg gag gag gag tcc agc aag cag cag gaa tcc cag cct gtg tcc Thr Glu Glu Glu Ser Ser Lys Gln Gln Glu Ser Gln Pro Val Ser 1070 1075 1080	3249
ggt ggc cca gag gcc cct ccg gat tcc agg acc tgg agc cag gtg Gly Gly Pro Glu Ala Pro Pro Asp Ser Arg Thr Trp Ser Gln Val 1085 1090 1095	3294
tca gcg act gcc tcc tct gag gcc gag gcc agt gca tct cag gcc Ser Ala Thr Ala Ser Ser Glu Ala Glu Ala Ser Ala Ser Gln Ala 1100 1105 1110	3339
gac tgg cgg cag cag tgg aaa gcg gaa ccc cag gcc cca ggg tgc Asp Trp Arg Gln Gln Trp Lys Ala Glu Pro Gln Ala Pro Gly Cys 1115 1120 1125	3384
ggt gag acc cca gag gac agt tgc tcc gag ggc agc aca gca gac Gly Glu Thr Pro Glu Asp Ser Cys Ser Glu Gly Ser Thr Ala Asp 1130 1135 1140	3429

atg acc aac acc gct gag ctc	ctg gag cag atc cct gac ctc ggc	3474
Met Thr Asn Thr Ala Glu Leu	Leu Glu Gln Ile Pro Asp Leu Gly	
1145	1155	
cag gat gtc aag gac cca gag	gac tgc ttc act gaa ggc tgt gtc	3519
Gln Asp Val Lys Asp Pro Glu	Asp Cys Phe Thr Glu Gly Cys Val	
1160	1170	
cgg cgc tgt ccc tgc tgt gcg	gtg gac acc aca cag gcc cca ggg	3564
Arg Arg Cys Pro Cys Cys Ala	Val Asp Thr Thr Gln Ala Pro Gly	
1175	1185	
aag gtc tgg tgg cgg ttg cgc	aag acc tgc tac cac atc gtg gag	3609
Lys Val Trp Trp Arg Leu Arg	Lys Thr Cys Tyr His Ile Val Glu	
1190	1200	
cac agc tgg ttc gag aca ttc	atc atc ttc atg atc cta ctc agc	3654
His Ser Trp Phe Glu Thr Phe	Ile Ile Phe Met Ile Leu Leu Ser	
1205	1215	
agt gga gcg ctg gcc ttc gag	gac atc tac cta gag gag cgg aag	3699
Ser Gly Ala Leu Ala Phe Glu	Asp Ile Tyr Leu Glu Glu Arg Lys	
1220	1230	
acc atc aag gtt ctg ctt gag	tat gcc gac aag atg ttc aca tat	3744
Thr Ile Lys Val Leu Leu Glu	Tyr Ala Asp Lys Met Phe Thr Tyr	
1235	1245	
gtc ttc gtg ctg gag atg ctg	ctc aag tgg gtg gcc tac ggc ttc	3789
Val Phe Val Leu Glu Met Leu	Leu Lys Trp Val Ala Tyr Gly Phe	
1250	1260	
aag aag tac ttc acc aat gcc	tgg tgc tgg ctc gac ttc ctc atc	3834
Lys Lys Tyr Phe Thr Asn Ala	Trp Cys Trp Leu Asp Phe Leu Ile	
1265	1275	
gta gac gtc tct ctg gtc agc	ctg gtg gcc aac acc ctg ggc ttt	3879
Val Asp Val Ser Leu Val Ser	Leu Val Ala Asn Thr Leu Gly Phe	
1280	1290	
gcc gag atg ggt ccc atc aag	tca ctg cgg acg ctg cgt gca ctc	3924
Ala Glu Met Gly Pro Ile Lys	Ser Leu Arg Thr Leu Arg Ala Leu	
1295	1305	
cgt cct ctg aga gct ctg tca	cga ttt gag ggc atg agg gtg gtg	3969
Arg Pro Leu Arg Ala Leu Ser	Arg Phe Glu Gly Met Arg Val Val	
1310	1320	
gtc aat gcc ctg gtg ggc gcc	atc ccg tcc atc atg aac gtc ctc	4014
Val Asn Ala Leu Val Gly Ala	Ile Pro Ser Ile Met Asn Val Leu	
1325	1335	
ctc gtc tgc ctc atc ttc tgg	ctc atc ttc agc atc atg ggc gtg	4059
Leu Val Cys Leu Ile Phe Trp	Leu Ile Phe Ser Ile Met Gly Val	
1340	1350	
aac ctc ttt gcg ggg aag ttt	ggg agg tgc atc aac cag aca gag	4104
Asn Leu Phe Ala Gly Lys Phe	Gly Arg Cys Ile Asn Gln Thr Glu	
1355	1365	
gga gac ttg cct ttg aac tac	acc atc gtg aac aac aag agc cag	4149
Gly Asp Leu Pro Leu Asn Tyr	Thr Ile Val Asn Asn Lys Ser Gln	

1370						1375						1380						
tgt	gag	tcc	ttg	aac	ttg	acc	gga	gaa	ttg	tac	tgg	acc	aag	gtg	4194			
Cys	Glu	Ser	Leu	Asn	Leu	Thr	Gly	Glu	Leu	Tyr	Trp	Thr	Lys	Val				
	1385					1390					1395							
aaa	gtc	aac	ttt	gac	aac	gtg	ggg	gcc	ggg	tac	ctg	gcc	ctt	ctg	4239			
Lys	Val	Asn	Phe	Asp	Asn	Val	Gly	Ala	Gly	Tyr	Leu	Ala	Leu	Leu				
	1400					1405					1410							
cag	gtg	gca	aca	ttt	aaa	ggc	tgg	atg	gac	att	atg	tat	gca	gct	4284			
Gln	Val	Ala	Thr	Phe	Lys	Gly	Trp	Met	Asp	Ile	Met	Tyr	Ala	Ala				
	1415					1420					1425							
gtg	gac	tcc	agg	ggg	tat	gaa	gag	cag	cct	cag	tgg	gaa	tac	aac	4329			
Val	Asp	Ser	Arg	Gly	Tyr	Glu	Glu	Gln	Pro	Gln	Trp	Glu	Tyr	Asn				
	1430					1435					1440							
ctc	tac	atg	tac	atc	tat	ttt	gtc	att	ttc	atc	atc	ttt	ggg	tct	4374			
Leu	Tyr	Met	Tyr	Ile	Tyr	Phe	Val	Ile	Phe	Ile	Ile	Phe	Gly	Ser				
	1445					1450					1455							
ttc	ttc	acc	ctg	aac	ctc	ttt	att	ggg	gtc	atc	att	gac	aac	ttc	4419			
Phe	Phe	Thr	Leu	Asn	Leu	Phe	Ile	Gly	Val	Ile	Ile	Asp	Asn	Phe				
	1460					1465					1470							
aac	caa	cag	aag	aaa	aag	tta	ggg	ggc	cag	gac	atc	ttc	atg	aca	4464			
Asn	Gln	Gln	Lys	Lys	Lys	Leu	Gly	Gly	Gln	Asp	Ile	Phe	Met	Thr				
	1475					1480					1485							
gag	gag	cag	aag	aag	tac	tac	aat	gcc	atg	aag	aag	ctg	ggc	tcc	4509			
Glu	Glu	Gln	Lys	Lys	Tyr	Tyr	Asn	Ala	Met	Lys	Lys	Leu	Gly	Ser				
	1490					1495					1500							
aag	aag	ccc	cag	aag	ccc	atc	cca	cgg	ccc	ctg	aac	aag	tac	cag	4554			
Lys	Lys	Pro	Gln	Lys	Pro	Ile	Pro	Arg	Pro	Leu	Asn	Lys	Tyr	Gln				
	1505					1510					1515							
ggc	ttc	ata	ttc	gac	att	gtg	acc	aag	cag	gcc	ttt	gac	gtc	acc	4599			
Gly	Phe	Ile	Phe	Asp	Ile	Val	Thr	Lys	Gln	Ala	Phe	Asp	Val	Thr				
	1520					1525					1530							
atc	atg	ttt	ctg	atc	tgc	ttg	aat	atg	gtg	acc	atg	atg	gtg	gag	4644			
Ile	Met	Phe	Leu	Ile	Cys	Leu	Asn	Met	Val	Thr	Met	Met	Val	Glu				
	1535					1540					1545							
aca	gat	gac	caa	agt	cct	gag	aaa	atc	aac	atc	ttg	gcc	aag	atc	4689			
Thr	Asp	Asp	Gln	Ser	Pro	Glu	Lys	Ile	Asn	Ile	Leu	Ala	Lys	Ile				
	1550					1555					1560							
aac	ctg	ctc	ttt	gtg	gcc	atc	ttc	aca	ggc	gag	tgt	att	gtc	aag	4734			
Asn	Leu	Leu	Phe	Val	Ala	Ile	Phe	Thr	Gly	Glu	Cys	Ile	Val	Lys				
	1565					1570					1575							
ctg	gct	gcc	ctg	cgc	cac	tac	tac	ttc	acc	aac	agc	tgg	aat	atc	4779			
Leu	Ala	Ala	Leu	Arg	His	Tyr	Tyr	Phe	Thr	Asn	Ser	Trp	Asn	Ile				
	1580					1585					1590							
ttc	gac	ttc	gtg	gtt	gtc	atc	ctc	tcc	atc	gtg	ggc	act	gtg	ctc	4824			
Phe	Asp	Phe	Val	Val	Val	Ile	Leu	Ser	Ile	Val	Gly	Thr	Val	Leu				
	1595					1600					1605							
tcg	gac	atc	atc	cag	aag	tac	ttc	ttc	tcc	ccg	acg	ctc	ttc	cga	4869			

Ser	Asp	Ile	Ile	Gln	Lys	Tyr	Phe	Phe	Ser	Pro	Thr	Leu	Phe	Arg	
1610						1615					1620				
gtc	atc	cgc	ctg	gcc	cga	ata	ggc	cgc	atc	ctc	aga	ctg	atc	cga	4914
Val	Ile	Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg	Leu	Ile	Arg	
1625						1630					1635				
ggg	gcc	aag	ggg	atc	cgc	acg	ctg	ctc	ttt	gcc	ctc	atg	atg	tcc	4959
Gly	Ala	Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu	Met	Met	Ser	
1640						1645					1650				
ctg	cct	gcc	ctc	ttc	aac	atc	ggg	ctg	ctg	ctc	ttc	ctc	gtc	atg	5004
Leu	Pro	Ala	Leu	Phe	Asn	Ile	Gly	Leu	Leu	Leu	Phe	Leu	Val	Met	
1655						1660					1665				
ttc	atc	tac	tcc	atc	ttt	ggc	atg	gcc	aac	ttc	gct	tat	gtc	aag	5049
Phe	Ile	Tyr	Ser	Ile	Phe	Gly	Met	Ala	Asn	Phe	Ala	Tyr	Val	Lys	
1670						1675					1680				
tgg	gag	gct	ggc	atc	gac	gac	atg	ttc	aac	ttc	cag	acc	ttc	gcc	5094
Trp	Glu	Ala	Gly	Ile	Asp	Asp	Met	Phe	Asn	Phe	Gln	Thr	Phe	Ala	
1685						1690					1695				
aac	agc	atg	ctg	tgc	ctc	ttc	cag	atc	acc	acg	tcg	gcc	ggc	tgg	5139
Asn	Ser	Met	Leu	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser	Ala	Gly	Trp	
1700						1705					1710				
gat	ggc	ctc	ctc	agc	ccc	atc	ctc	aac	act	ggg	ccg	ccc	tac	tgc	5184
Asp	Gly	Leu	Leu	Ser	Pro	Ile	Leu	Asn	Thr	Gly	Pro	Pro	Tyr	Cys	
1715						1720					1725				
gac	ccc	act	ctg	ccc	aac	agc	aat	ggc	tct	cgg	ggg	gac	tgc	ggg	5229
Asp	Pro	Thr	Leu	Pro	Asn	Ser	Asn	Gly	Ser	Arg	Gly	Asp	Cys	Gly	
1730						1735					1740				
agc	cca	gcc	gtg	ggc	atc	ctc	ttc	ttc	acc	acc	tac	atc	atc	atc	5274
Ser	Pro	Ala	Val	Gly	Ile	Leu	Phe	Phe	Thr	Thr	Tyr	Ile	Ile	Ile	
1745						1750					1755				
tcc	ttc	ctc	atc	gtg	gtc	aac	atg	tac	att	gcc	atc	atc	ctg	gag	5319
Ser	Phe	Leu	Ile	Val	Val	Asn	Met	Tyr	Ile	Ala	Ile	Ile	Leu	Glu	
1760						1765					1770				
aac	ttc	agc	gtg	gcc	acg	gag	gag	agc	acc	gag	ccc	ctg	agt	gag	5364
Asn	Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Thr	Glu	Pro	Leu	Ser	Glu	
1775						1780					1785				
gac	gac	ttc	gat	atg	ttc	tat	gag	atc	tgg	gag	aaa	ttt	gac	cca	5409
Asp	Asp	Phe	Asp	Met	Phe	Tyr	Glu	Ile	Trp	Glu	Lys	Phe	Asp	Pro	
1790						1795					1800				
gag	gcc	act	cag	ttt	att	gag	tat	tcg	gtc	ctg	tct	gac	ttt	gcc	5454
Glu	Ala	Thr	Gln	Phe	Ile	Glu	Tyr	Ser	Val	Leu	Ser	Asp	Phe	Ala	
1805						1810					1815				
gat	gcc	ctg	tct	gag	cca	ctc	cgt	atc	gcc	aag	ccc	aac	cag	ata	5499
Asp	Ala	Leu	Ser	Glu	Pro	Leu	Arg	Ile	Ala	Lys	Pro	Asn	Gln	Ile	
1820						1825					1830				
agc	ctc	atc	aac	atg	gac	ctg	ccc	atg	gtg	agt	ggg	gac	cgc	atc	5544
Ser	Leu	Ile	Asn	Met	Asp	Leu	Pro	Met	Val	Ser	Gly	Asp	Arg	Ile	
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cat tgc atg gac att ctc ttt gcc ttc acc aaa agg gtc ctg ggg	5589
His Cys Met Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly	
1850 1855 1860	

gag tct ggg gag atg gac gcc ctg aag atc cag atg gag gag aag	5634
Glu Ser Gly Glu Met Asp Ala Leu Lys Ile Gln Met Glu Glu Lys	
1865 1870 1875	

ttc atg gca gcc aac cca tcc aag atc tcc tac gag ccc atc acc	5679
Phe Met Ala Ala Asn Pro Ser Lys Ile Ser Tyr Glu Pro Ile Thr	
1880 1885 1890	

acc aca ctc cgg cgc aag cac gaa gag gtg tcg gcc atg gtt atc	5724
Thr Thr Leu Arg Arg Lys His Glu Glu Val Ser Ala Met Val Ile	
1895 1900 1905	

cag aga gcc ttc cgc agg cac ctg ctg caa cgc tct ttg aag cat	5769
Gln Arg Ala Phe Arg Arg His Leu Leu Gln Arg Ser Leu Lys His	
1910 1915 1920	

gcc tcc ttc ctc ttc cgt cag cag gcg ggc agc ggc ctc tcc gaa	5814
Ala Ser Phe Leu Phe Arg Gln Gln Ala Gly Ser Gly Leu Ser Glu	
1925 1930 1935	

gag gat gcc cct gag cga gag ggc ctc atc gcc tac gtg atg agt	5859
Glu Asp Ala Pro Glu Arg Glu Gly Leu Ile Ala Tyr Val Met Ser	
1940 1945 1950	

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Glu Asn Phe Ser Arg Pro Leu Gly Pro Pro Ser Ser Ser Ser Ile	
1955 1960 1965	

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Ser Ser Thr Ser Phe Pro Pro Ser Tyr Asp Ser Val Thr Arg Ala	
1970 1975 1980	

acc agc gat aac ctc cag gtg cgg ggg tct gac tac agc cac agt	5994
Thr Ser Asp Asn Leu Gln Val Arg Gly Ser Asp Tyr Ser His Ser	
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Glu Asp Leu Ala Asp Phe Pro Pro Ser Pro Asp Arg Asp Arg Glu	
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Ser Ile Val	
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Pro	Asp	Leu	Tyr	Gly	Asn	Pro	Pro	Gln	Glu	Leu	Ile	Gly	Glu	Pro	Leu	65	70	75
Glu	Asp	Leu	Asp	Pro	Phe	Tyr	Ser	Thr	Gln	Lys	Thr	Phe	Ile	Val	Leu	85	90	95
Asn	Lys	Gly	Lys	Thr	Ile	Phe	Arg	Phe	Ser	Ala	Thr	Asn	Ala	Leu	Tyr	100	105	110
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Val	His	Ser	Leu	Phe	Asn	Met	Leu	Ile	Met	Cys	Thr	Ile	Leu	Thr	Asn	130	135	140
Cys	Val	Phe	Met	Ala	Gln	His	Asp	Pro	Pro	Pro	Trp	Thr	Lys	Tyr	Val	145	150	155
Glu	Tyr	Thr	Phe	Thr	Ala	Ile	Tyr	Thr	Phe	Glu	Ser	Leu	Val	Lys	Ile	165	170	175
Leu	Ala	Arg	Gly	Phe	Cys	Leu	His	Ala	Phe	Thr	Phe	Leu	Arg	Asp	Pro	180	185	190
Trp	Asn	Trp	Leu	Asp	Phe	Ser	Val	Ile	Ile	Met	Ala	Tyr	Thr	Thr	Glu	195	200	205
Phe	Val	Asp	Leu	Gly	Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu	210	215	220
Arg	Ala	Leu	Lys	Thr	Ile	Ser	Val	Ile	Ser	Gly	Leu	Lys	Thr	Ile	Val	225	230	235
Gly	Ala	Leu	Ile	Gln	Ser	Val	Lys	Lys	Leu	Ala	Asp	Val	Met	Val	Leu	245	250	255
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Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu
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Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro
325 330 335

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370 375 380

Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly
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Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys
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Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu
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Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser
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Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys
465 470 475 480

Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys
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Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr
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Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser

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Ser	Pro	Gly	Thr	Ser	Ala	Pro	Gly	His	Ala	Leu	His	Gly	Lys	Lys	Asn
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Ser	Thr	Val	Asp	Cys	Asn	Gly	Val	Val	Ser	Leu	Leu	Gly	Ala	Gly	Asp
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Ser	Ile	Lys	Gln	Gly	Val	Lys	Leu	Val	Val	Met	Asp	Pro	Phe	Thr	Asp
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Asp Ser Ile Ile Val Ile Leu Ser Leu Met Glu Leu Gly Leu Ser Arg
785 790 795 800

Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe
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Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile Ile
820 825 830

Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile
835 840 845

Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Asn
850 855 860

Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His
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Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln
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Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ala
930 935 940

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945 950 955 960

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Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro
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Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg
1010 1015 1020

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acc agc ttc gat tcc ttt gcc tgg gcc ttt ctt gca ctc ttc cgc ctg Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu 355 360 365	1104
atg acg cag gac tgc tgg gag cgc ctc tat cag cag acc ctc agg tcc Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser 370 375 380	1152
gca ggg aag atc tac atg atc ttc ttc atg ctt gtc atc ttc ctg ggg Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly	1200

385	390	395	400	
tcc ttc tac ctg gtg aac ctg atc ctg gcc gtg gtc gca atg gcc tat				1248
Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr	405	410	415	
gag gag caa aac caa gcc acc atc gct gag acc gag gag aag gaa aag				1296
Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys	420	425	430	
cgc ttc cag gag gcc atg gaa atg ctc aag aaa gaa cac gag gcc ctc				1344
Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu	435	440	445	
acc atc agg ggt gtg gat acc gtg tcc cgt agc tcc ttg gag atg tcc				1392
Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser	450	455	460	
cct ttg gcc cca gta aac agc cat gag aga aga agc aag agg aga aaa				1440
Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys	465	470	475	480
cgg atg tct tca gga act gag gag tgt ggg gag gac agg ctc ccc aag				1488
Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys	485	490	495	
tct gac tca gaa gat ggt ccc aga gca atg aat cat ctc agc ctc acc				1536
Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr	500	505	510	
cgt ggc ctc agc agg act tct atg aag cca cgt tcc agc cgc ggg agc				1584
Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser	515	520	525	
att ttc acc ttt cgc agg cga gac ctg ggt tct gaa gca gat ttt gca				1632
Ile Phe Thr Phe Arg Arg Arg Asp Leu Gly Ser Glu Ala Asp Phe Ala	530	535	540	
gat gat gaa aac agc aca gcg ggg gag agc gag agc cac cac aca tca				1680
Asp Asp Glu Asn Ser Thr Ala Gly Glu Ser Glu Ser His His Thr Ser	545	550	555	560
ctg ctg gtg ccc tgg ccc ctg cgc cgg acc agt gcc cag gga cag ccc				1728
Leu Leu Val Pro Trp Pro Leu Arg Arg Thr Ser Ala Gln Gly Gln Pro	565	570	575	
agt ccc gga acc tcg gct cct ggc cac gcc ctc cat ggc aaa aag aac				1776
Ser Pro Gly Thr Ser Ala Pro Gly His Ala Leu His Gly Lys Lys Asn	580	585	590	
agc act gtg gac tgc aat ggg gtg gtc tca tta ctg ggg gca ggc gac				1824
Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Leu Gly Ala Gly Asp	595	600	605	
cca gag gcc aca tcc cca gga agc cac ctc ctc cgc cct gtg atg cta				1872
Pro Glu Ala Thr Ser Pro Gly Ser His Leu Leu Arg Pro Val Met Leu	610	615	620	
gag cac ccg cca gac acg acc acg cca tcg gag gag cca ggc ggg ccc				1920
Glu His Pro Pro Asp Thr Thr Thr Pro Ser Glu Glu Pro Gly Gly Pro	625	630	635	640
cag atg ctg acc tcc cag gct ccg tgt gta gat ggc ttc gag gag cca				1968

Gln Met Leu Thr Ser Gln Ala Pro Cys Val Asp Gly Phe Glu Glu Pro	
645 650 655	
gga gca cgg cag cgg gcc ctc agc gca gtc agc gtc ctc acc agc gca	2016
Gly Ala Arg Gln Arg Ala Leu Ser Ala Val Ser Val Leu Thr Ser Ala	
660 665 670	
ctg gaa gag tta gag gag tct cgc cac aag tgt cca cca tgc tgg aac	2064
Leu Glu Glu Leu Glu Glu Ser Arg His Lys Cys Pro Pro Cys Trp Asn	
675 680 685	
cgt ctc gcc cag cgc tac ctg atc tgg gag tgc tgc ccg ctg tgg atg	2112
Arg Leu Ala Gln Arg Tyr Leu Ile Trp Glu Cys Cys Pro Leu Trp Met	
690 695 700	
tcc atc aag cag gga gtg aag ttg gtg gtc atg gac ccg ttt act gac	2160
Ser Ile Lys Gln Gly Val Lys Leu Val Val Met Asp Pro Phe Thr Asp	
705 710 715 720	
ctc acc atc act atg tgc atc gta ctc aac aca ctc ttc atg gcg ctg	2208
Leu Thr Ile Thr Met Cys Ile Val Leu Asn Thr Leu Phe Met Ala Leu	
725 730 735	
gag cac tac aac atg aca agt gaa ttc gag gag atg ctg cag gtc gga	2256
Glu His Tyr Asn Met Thr Ser Glu Phe Glu Glu Met Leu Gln Val Gly	
740 745 750	
aac ctg gtc ttc aca ggg att ttc aca gca gag atg acc ttc aag atc	2304
Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Thr Phe Lys Ile	
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att gcc ctc gac ccc tac tac tac ttc caa cag ggc tgg aac atc ttc	2352
Ile Ala Leu Asp Pro Tyr Tyr Tyr Phe Gln Gln Gly Trp Asn Ile Phe	
770 775 780	
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Asp Ser Ile Ile Val Ile Leu Ser Leu Met Glu Leu Gly Leu Ser Arg	
785 790 795 800	
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Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe	
805 810 815	
aag ctg gcc aaa tca tgg ccc acc ctg aac aca ctc atc aag atc atc	2496
Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile Ile	
820 825 830	
ggg aac tca gtg ggg gca ctg ggg aac ctg aca ctg gtg cta gcc atc	2544
Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile	
835 840 845	
atc gtg ttc atc ttt gct gtg gtg ggc atg cag ctc ttt ggc aag aac	2592
Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Asn	
850 855 860	
tac tgc gag ctg agg gac agc gac tca ggc ctg ctg cct cgc tgg cac	2640
Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His	
865 870 875 880	
atg atg gac ttc ttt cat gcc ttc ctc atc atc ttc cgc atc ctc tgt	2688
Met Met Asp Phe Phe His Ala Phe Leu Ile Ile Phe Arg Ile Leu Cys	
885 890 895	

gga gag tgg atc gag acc atg tgg gac tgc atg gag gtg tcg ggg cag Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln 900 905 910	2736
tca tta tgc ctg ctg gtc ttc ttg ctt gtt atg gtc att ggc aac ctt Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu 915 920 925	2784
gtg gtc ctg aat ctc ttc ctg gcc ttg ctg ctc agc tcc ttc agt gca Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ala 930 935 940	2832
gac aac ctc aca gcc cct gat gag gac aga gag atg aac aac ctc cag Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln 945 950 955 960	2880
ctg gcc ctg gcc cgc atc cag agg ggc ctg cgc ttt gtc aag cgg acc Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr 965 970 975	2928
acc tgg gat ttc tgc tgt ggt ctc ctg cgg cag cgg cct cag aag ccc Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro 980 985 990	2976
gca gcc ctt gcc gcc cag ggc cag ctg ccc agc tgc att gcc acc ccc Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro 995 1000 1005	3024
tac tcc ccg cca ccc cca gag acg gag aag gtg cct ccc acc cgc Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg 1010 1015 1020	3069
aag gaa aca cgg ttt gag gaa ggc gag caa cca ggc cag ggc acc Lys Glu Thr Arg Phe Glu Glu Gly Glu Gln Pro Gly Gln Gly Thr 1025 1030 1035	3114
ccc ggg gat cca gag ccc gtg tgt gtg ccc atc gct gtg gcc gag Pro Gly Asp Pro Glu Pro Val Cys Val Pro Ile Ala Val Ala Glu 1040 1045 1050	3159
tca gac aca gat gac caa gaa gaa gat gag gag aac agc ctg ggc Ser Asp Thr Asp Asp Gln Glu Glu Asp Glu Glu Asn Ser Leu Gly 1055 1060 1065	3204
acg gag gag gag tcc agc aag cag gaa tcc cag cct gtg tcc ggt Thr Glu Glu Glu Ser Ser Lys Gln Glu Ser Gln Pro Val Ser Gly 1070 1075 1080	3249
ggc cca gag gcc cct ccg gat tcc agg acc tgg agc cag gtg tca Gly Pro Glu Ala Pro Pro Asp Ser Arg Thr Trp Ser Gln Val Ser 1085 1090 1095	3294
gcg act gcc tcc tct gag gcc gag gcc agt gca tct cag gcc gac Ala Thr Ala Ser Ser Glu Ala Glu Ala Ser Ala Ser Gln Ala Asp 1100 1105 1110	3339
tgg cgg cag cag tgg aaa gcg gaa ccc cag gcc cca ggg tgc ggt Trp Arg Gln Gln Trp Lys Ala Glu Pro Gln Ala Pro Gly Cys Gly 1115 1120 1125	3384
gag acc cca gag gac agt tgc tcc gag ggc agc aca gca gac atg Glu Thr Pro Glu Asp Ser Cys Ser Glu Gly Ser Thr Ala Asp Met 1130 1135 1140	3429

acc aac acc gct gag ctc ctg gag cag atc cct gac ctc ggc cag	3474
Thr Asn Thr Ala Glu Leu Leu Glu Gln Ile Pro Asp Leu Gly Gln	
1145 1150 1155	
gat gtc aag gac cca gag gac tgc ttc act gaa ggc tgt gtc cgg	3519
Asp Val Lys Asp Pro Glu Asp Cys Phe Thr Glu Gly Cys Val Arg	
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Arg Cys Pro Cys Cys Ala Val Asp Thr Thr Gln Ala Pro Gly Lys	
1175 1180 1185	
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Val Trp Trp Arg Leu Arg Lys Thr Cys Tyr His Ile Val Glu His	
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agc tgg ttc gag aca ttc atc atc ttc atg atc cta ctc agc agt	3654
Ser Trp Phe Glu Thr Phe Ile Ile Phe Met Ile Leu Leu Ser Ser	
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gga gcg ctg gcc ttc gag gac atc tac cta gag gag cgg aag acc	3699
Gly Ala Leu Ala Phe Glu Asp Ile Tyr Leu Glu Glu Arg Lys Thr	
1220 1225 1230	
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Ile Lys Val Leu Leu Glu Tyr Ala Asp Lys Met Phe Thr Tyr Val	
1235 1240 1245	
ttc gtg ctg gag atg ctg ctc aag tgg gtg gcc tac ggc ttc aag	3789
Phe Val Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Phe Lys	
1250 1255 1260	
aag tac ttc acc aat gcc tgg tgc tgg ctc gac ttc ctc atc gta	3834
Lys Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val	
1265 1270 1275	
gac gtc tct ctg gtc agc ctg gtg gcc aac acc ctg ggc ttt gcc	3879
Asp Val Ser Leu Val Ser Leu Val Ala Asn Thr Leu Gly Phe Ala	
1280 1285 1290	
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Glu Met Gly Pro Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg	
1295 1300 1305	
cct ctg aga gct ctg tca cga ttt gag ggc atg agg gtg gtg gtc	3969
Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val Val	
1310 1315 1320	
aat gcc ctg gtg ggc gcc atc ccg tcc atc atg aac gtc ctc ctc	4014
Asn Ala Leu Val Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu	
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gtc tgc ctc atc ttc tgg ctc atc ttc agc atc atg ggc gtg aac	4059
Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn	
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Leu Phe Ala Gly Lys Phe Gly Arg Cys Ile Asn Gln Thr Glu Gly	
1355 1360 1365	
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Asp Leu Pro Leu Asn Tyr Thr Ile Val Asn Asn Lys Ser Gln Cys	

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Glu Ser Leu Asn Leu Thr	Gly Glu Leu Tyr Trp Thr	Lys Val Lys	
1385	1390	1395	
gtc aac ttt gac aac gtg	ggg gcc ggg tac ctg gcc	ctt ctg cag	4239
Val Asn Phe Asp Asn Val	Gly Ala Gly Tyr Leu Ala	Leu Leu Gln	
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gtg gca aca ttt aaa ggc	tgg atg gac att atg tat	gca gct gtg	4284
Val Ala Thr Phe Lys Gly	Trp Met Asp Ile Met Tyr	Ala Ala Val	
1415	1420	1425	
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Asp Ser Arg Gly Tyr Glu	Glu Gln Pro Gln Trp Glu	Tyr Asn Leu	
1430	1435	1440	
tac atg tac atc tat ttt	gtc att ttc atc atc ttt	ggg tct ttc	4374
Tyr Met Tyr Ile Tyr Phe	Val Ile Phe Ile Ile Phe	Gly Ser Phe	
1445	1450	1455	
ttc acc ctg aac ctc ttt	att ggt gtc atc att gac	aac ttc aac	4419
Phe Thr Leu Asn Leu Phe	Ile Gly Val Ile Ile Asp	Asn Phe Asn	
1460	1465	1470	
caa cag aag aaa aag tta	ggg ggc cag gac atc ttc	atg aca gag	4464
Gln Gln Lys Lys Lys Leu	Gly Gly Gln Asp Ile Phe	Met Thr Glu	
1475	1480	1485	
gag cag aag aag tac tac	aat gcc atg aag aag ctg	ggc tcc aag	4509
Glu Gln Lys Lys Tyr Tyr	Asn Ala Met Lys Lys Leu	Gly Ser Lys	
1490	1495	1500	
aag ccc cag aag ccc atc	cca cgg ccc ctg aac aag	tac cag ggc	4554
Lys Pro Gln Lys Pro Ile	Pro Arg Pro Leu Asn Lys	Tyr Gln Gly	
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ttc ata ttc gac att gtg	acc aag cag gcc ttt gac	gtc acc atc	4599
Phe Ile Phe Asp Ile Val	Thr Lys Gln Ala Phe Asp	Val Thr Ile	
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atg ttt ctg atc tgc ttg	aat atg gtg acc atg atg	gtg gag aca	4644
Met Phe Leu Ile Cys Leu	Asn Met Val Thr Met Met	Val Glu Thr	
1535	1540	1545	
gat gac caa agt cct gag	aaa atc aac atc ttg gcc	aag atc aac	4689
Asp Asp Gln Ser Pro Glu	Lys Ile Asn Ile Leu Ala	Lys Ile Asn	
1550	1555	1560	
ctg ctc ttt gtg gcc atc	ttc aca ggc gag tgt att	gtc aag ctg	4734
Leu Leu Phe Val Ala Ile	Phe Thr Gly Glu Cys Ile	Val Lys Leu	
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gct gcc ctg cgc cac tac	tac ttc acc aac agc tgg	aat atc ttc	4779
Ala Ala Leu Arg His Tyr	Tyr Phe Thr Asn Ser Trp	Asn Ile Phe	
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gac ttc gtg gtt gtc atc	ctc tcc atc gtg ggc act	gtg ctc tcg	4824
Asp Phe Val Val Val Ile	Leu Ser Ile Val Gly Thr	Val Leu Ser	
1595	1600	1605	
gac atc atc cag aag tac	ttc ttc tcc ccg acg ctc	ttc cga gtc	4869

Asp	Ile	Ile	Gln	Lys	Tyr	Phe	Phe	Ser	Pro	Thr	Leu	Phe	Arg	Val	
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atc	cgc	ctg	gcc	cga	ata	ggc	cgc	atc	ctc	aga	ctg	atc	cga	ggg	4914
Ile	Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg	Leu	Ile	Arg	Gly	
	1625					1630					1635				
gcc	aag	ggg	atc	cgc	acg	ctg	ctc	ttt	gcc	ctc	atg	atg	tcc	ctg	4959
Ala	Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu	Met	Met	Ser	Leu	
	1640					1645					1650				
cct	gcc	ctc	ttc	aac	atc	ggg	ctg	ctg	ctc	ttc	ctc	gtc	atg	ttc	5004
Pro	Ala	Leu	Phe	Asn	Ile	Gly	Leu	Leu	Leu	Phe	Leu	Val	Met	Phe	
	1655					1660					1665				
atc	tac	tcc	atc	ttt	ggc	atg	gcc	aac	ttc	gct	tat	gtc	aag	tgg	5049
Ile	Tyr	Ser	Ile	Phe	Gly	Met	Ala	Asn	Phe	Ala	Tyr	Val	Lys	Trp	
	1670					1675					1680				
gag	gct	ggc	atc	gac	gac	atg	ttc	aac	ttc	cag	acc	ttc	gcc	aac	5094
Glu	Ala	Gly	Ile	Asp	Asp	Met	Phe	Asn	Phe	Gln	Thr	Phe	Ala	Asn	
	1685					1690					1695				
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Ser	Met	Leu	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser	Ala	Gly	Trp	Asp	
	1700					1705					1710				
ggc	ctc	ctc	agc	ccc	atc	ctc	aac	act	ggg	ccg	ccc	tac	tgc	gac	5184
Gly	Leu	Leu	Ser	Pro	Ile	Leu	Asn	Thr	Gly	Pro	Pro	Tyr	Cys	Asp	
	1715					1720					1725				
ccc	act	ctg	ccc	aac	agc	aat	ggc	tct	cgg	ggg	gac	tgc	ggg	agc	5229
Pro	Thr	Leu	Pro	Asn	Ser	Asn	Gly	Ser	Arg	Gly	Asp	Cys	Gly	Ser	
	1730					1735					1740				
cca	gcc	gtg	ggc	atc	ctc	ttc	ttc	acc	acc	tac	atc	atc	atc	tcc	5274
Pro	Ala	Val	Gly	Ile	Leu	Phe	Phe	Thr	Thr	Tyr	Ile	Ile	Ile	Ser	
	1745					1750					1755				
ttc	ctc	atc	gtg	gtc	aac	atg	tac	att	gcc	atc	atc	ctg	gag	aac	5319
Phe	Leu	Ile	Val	Val	Asn	Met	Tyr	Ile	Ala	Ile	Ile	Leu	Glu	Asn	
	1760					1765					1770				
ttc	agc	gtg	gcc	acg	gag	gag	agc	acc	gag	ccc	ctg	agt	gag	gac	5364
Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Thr	Glu	Pro	Leu	Ser	Glu	Asp	
	1775					1780					1785				
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Asp	Phe	Asp	Met	Phe	Tyr	Glu	Ile	Trp	Glu	Lys	Phe	Asp	Pro	Glu	
	1790					1795					1800				
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Ala	Thr	Gln	Phe	Ile	Glu	Tyr	Ser	Val	Leu	Ser	Asp	Phe	Ala	Asp	
	1805					1810					1815				
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Ala	Leu	Ser	Glu	Pro	Leu	Arg	Ile	Ala	Lys	Pro	Asn	Gln	Ile	Ser	
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Leu	Ile	Asn	Met	Asp	Leu	Pro	Met	Val	Ser	Gly	Asp	Arg	Ile	His	
	1835					1840					1845				

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Cys Met Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu	
1850 1855 1860	
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Ser Gly Glu Met Asp Ala Leu Lys Ile Gln Met Glu Glu Lys Phe	
1865 1870 1875	
atg gca gcc aac cca tcc aag atc tcc tac gag ccc atc acc acc	5679
Met Ala Ala Asn Pro Ser Lys Ile Ser Tyr Glu Pro Ile Thr Thr	
1880 1885 1890	
aca ctc cgg cgc aag cac gaa gag gtg tcg gcc atg gtt atc cag	5724
Thr Leu Arg Arg Lys His Glu Glu Val Ser Ala Met Val Ile Gln	
1895 1900 1905	
aga gcc ttc cgc agg cac ctg ctg caa cgc tct ttg aag cat gcc	5769
Arg Ala Phe Arg Arg His Leu Leu Gln Arg Ser Leu Lys His Ala	
1910 1915 1920	
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Ser Phe Leu Phe Arg Gln Gln Ala Gly Ser Gly Leu Ser Glu Glu	
1925 1930 1935	
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Asp Ala Pro Glu Arg Glu Gly Leu Ile Ala Tyr Val Met Ser Glu	
1940 1945 1950	
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Asn Phe Ser Arg Pro Leu Gly Pro Pro Ser Ser Ser Ser Ile Ser	
1955 1960 1965	
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Ser Thr Ser Phe Pro Pro Ser Tyr Asp Ser Val Thr Arg Ala Thr	
1970 1975 1980	
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Ser Asp Asn Leu Gln Val Arg Gly Ser Asp Tyr Ser His Ser Glu	
1985 1990 1995	
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Asp Leu Ala Asp Phe Pro Pro Ser Pro Asp Arg Asp Arg Glu Ser	
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Ala	Arg	Gly	Ser	Thr	Thr	Leu	Gln	Glu	Ser	Arg	Glu	Gly	Leu	Pro	Glu	35	40	45
Glu	Glu	Ala	Pro	Arg	Pro	Gln	Leu	Asp	Leu	Gln	Ala	Ser	Lys	Lys	Leu	50	55	60
Pro	Asp	Leu	Tyr	Gly	Asn	Pro	Pro	Gln	Glu	Leu	Ile	Gly	Glu	Pro	Leu	65	70	75
Glu	Asp	Leu	Asp	Pro	Phe	Tyr	Ser	Thr	Gln	Lys	Thr	Phe	Ile	Val	Leu	85	90	95
Asn	Lys	Gly	Lys	Thr	Ile	Phe	Arg	Phe	Ser	Ala	Thr	Asn	Ala	Leu	Tyr	100	105	110
Val	Leu	Ser	Pro	Phe	His	Pro	Ile	Arg	Arg	Ala	Ala	Val	Lys	Ile	Leu	115	120	125
Val	His	Ser	Leu	Phe	Asn	Met	Leu	Ile	Met	Cys	Thr	Ile	Leu	Thr	Asn	130	135	140
Cys	Val	Phe	Met	Ala	Gln	His	Asp	Pro	Pro	Pro	Trp	Thr	Lys	Tyr	Val	145	150	155
Glu	Tyr	Thr	Phe	Thr	Ala	Ile	Tyr	Thr	Phe	Glu	Ser	Leu	Val	Lys	Ile	165	170	175
Leu	Ala	Arg	Gly	Phe	Cys	Leu	His	Ala	Phe	Thr	Phe	Leu	Arg	Asp	Pro	180	185	190
Trp	Asn	Trp	Leu	Asp	Phe	Ser	Val	Ile	Ile	Met	Ala	Tyr	Thr	Thr	Glu	195	200	205
Phe	Val	Asp	Leu	Gly	Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu	210	215	220
Arg	Ala	Leu	Lys	Thr	Ile	Ser	Val	Ile	Ser	Gly	Leu	Lys	Thr	Ile	Val	225	230	235
Gly	Ala	Leu	Ile	Gln	Ser	Val	Lys	Lys	Leu	Ala	Asp	Val	Met	Val	Leu	245	250	255
Thr	Val	Phe	Cys	Leu	Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	260	265	270

Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn
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Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu
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Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr
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Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro
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Glu Gly Tyr Arg Cys Leu Lys Ala Gly Glu Asn Pro Asp His Gly Tyr
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Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu
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Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser
370 375 380

Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly
385 390 395 400

Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr
405 410 415

Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys
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Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu
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Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser
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Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys
465 470 475 480

Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys
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Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr
500 505 510

Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser

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Leu	Leu	Val	Pro	Trp	Pro	Leu	Arg	Arg	Thr	Ser	Ala	Gln	Gly	Gln	Pro
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Ser	Pro	Gly	Thr	Ser	Ala	Pro	Gly	His	Ala	Leu	His	Gly	Lys	Lys	Asn
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Ser	Thr	Val	Asp	Cys	Asn	Gly	Val	Val	Ser	Leu	Leu	Gly	Ala	Gly	Asp
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Pro	Glu	Ala	Thr	Ser	Pro	Gly	Ser	His	Leu	Leu	Arg	Pro	Val	Met	Leu
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		675					680					685			
Arg	Leu	Ala	Gln	Arg	Tyr	Leu	Ile	Trp	Glu	Cys	Cys	Pro	Leu	Trp	Met
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Ser	Ile	Lys	Gln	Gly	Val	Lys	Leu	Val	Val	Met	Asp	Pro	Phe	Thr	Asp
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Glu	His	Tyr	Asn	Met	Thr	Ser	Glu	Phe	Glu	Glu	Met	Leu	Gln	Val	Gly
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Asn	Leu	Val	Phe	Thr	Gly	Ile	Phe	Thr	Ala	Glu	Met	Thr	Phe	Lys	Ile
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Ile Ala Leu Asp Pro Tyr Tyr Tyr Phe Gln Gln Gly Trp Asn Ile Phe
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Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe
805 810 815

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820 825 830

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Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Asn
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Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His
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Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg
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Ser	Asp	Thr	Asp	Asp	Gln	Glu	Glu	Asp	Glu	Glu	Asn	Ser	Leu	Gly
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Gly	Pro	Glu	Ala	Pro	Pro	Asp	Ser	Arg	Thr	Trp	Ser	Gln	Val	Ser
1085						1090					1095			
Ala	Thr	Ala	Ser	Ser	Glu	Ala	Glu	Ala	Ser	Ala	Ser	Gln	Ala	Asp
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Trp	Arg	Gln	Gln	Trp	Lys	Ala	Glu	Pro	Gln	Ala	Pro	Gly	Cys	Gly
1115						1120					1125			
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Thr	Asn	Thr	Ala	Glu	Leu	Leu	Glu	Gln	Ile	Pro	Asp	Leu	Gly	Gln
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Asp	Val	Lys	Asp	Pro	Glu	Asp	Cys	Phe	Thr	Glu	Gly	Cys	Val	Arg
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Arg	Cys	Pro	Cys	Cys	Ala	Val	Asp	Thr	Thr	Gln	Ala	Pro	Gly	Lys
1175						1180					1185			
Val	Trp	Trp	Arg	Leu	Arg	Lys	Thr	Cys	Tyr	His	Ile	Val	Glu	His
1190						1195					1200			
Ser	Trp	Phe	Glu	Thr	Phe	Ile	Ile	Phe	Met	Ile	Leu	Leu	Ser	Ser
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1235						1240					1245			
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Lys	Tyr	Phe	Thr	Asn	Ala	Trp	Cys	Trp	Leu	Asp	Phe	Leu	Ile	Val
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					Thr
					Ile
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				Val	Thr
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					Glu
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					Lys
					Ile
					Asn
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					Leu
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					Lys
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					Phe
					Ala
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					Trp
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Leu	Leu	Val	Pro	Trp	Pro	Leu	Arg	Arg	Thr	Ser	Ala	Gln	Gly	Gln	Pro				
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agt	ccc	gga	acc	tcg	gct	cct	ggc	cac	gcc	ctc	cat	ggc	aaa	aag	aac		1776		
Ser	Pro	Gly	Thr	Ser	Ala	Pro	Gly	His	Ala	Leu	His	Gly	Lys	Lys	Asn				
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agc	act	gtg	gac	tgc	aat	ggg	gtg	gtc	tca	tta	ctg	ggg	gca	ggc	gac		1824		
Ser	Thr	Val	Asp	Cys	Asn	Gly	Val	Val	Ser	Leu	Leu	Gly	Ala	Gly	Asp				
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cca	gag	gcc	aca	tcc	cca	gga	agc	cac	ctc	ctc	cgc	cct	gtg	atg	cta		1872		
Pro	Glu</																		

Gln	Met	Leu	Thr	Ser	Gln	Ala	Pro	Cys	Val	Asp	Gly	Phe	Glu	Glu	Pro	
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gga	gca	cgg	cag	cgg	gcc	ctc	agc	gca	gtc	agc	gtc	ctc	acc	agc	gca	2016
Gly	Ala	Arg	Gln	Arg	Ala	Leu	Ser	Ala	Val	Ser	Val	Leu	Thr	Ser	Ala	
			660					665					670			
ctg	gaa	gag	tta	gag	gag	tct	cgc	cac	aag	tgt	cca	cca	tgc	tgg	aac	2064
Leu	Glu	Glu	Leu	Glu	Glu	Ser	Arg	His	Lys	Cys	Pro	Pro	Cys	Trp	Asn	
		675					680					685				
cgt	ctc	gcc	cag	cgc	tac	ctg	atc	tgg	gag	tgc	tgc	ccg	ctg	tgg	atg	2112
Arg	Leu	Ala	Gln	Arg	Tyr	Leu	Ile	Trp	Glu	Cys	Cys	Pro	Leu	Trp	Met	
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tcc	atc	aag	cag	gga	gtg	aag	ttg	gtg	gtc	atg	gac	ccg	ttt	act	gac	2160
Ser	Ile	Lys	Gln	Gly	Val	Lys	Leu	Val	Val	Met	Asp	Pro	Phe	Thr	Asp	
705					710					715					720	
ctc	acc	atc	act	atg	tgc	atc	gta	ctc	aac	aca	ctc	ttc	atg	gcg	ctg	2208
Leu	Thr	Ile	Thr	Met	Cys	Ile	Val	Leu	Asn	Thr	Leu	Phe	Met	Ala	Leu	
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gag	cac	tac	aac	atg	aca	agt	gaa	ttc	gag	gag	atg	ctg	cag	gtc	gga	2256
Glu	His	Tyr	Asn	Met	Thr	Ser	Glu	Phe	Glu	Glu	Met	Leu	Gln	Val	Gly	
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aac	ctg	gtc	ttc	aca	ggg	att	ttc	aca	gca	gag	atg	acc	ttc	aag	atc	2304
Asn	Leu	Val	Phe	Thr	Gly	Ile	Phe	Thr	Ala	Glu	Met	Thr	Phe	Lys	Ile	
		755					760					765				
att	gcc	ctc	gac	ccc	tac	tac	tac	ttc	caa	cag	ggc	tgg	aac	atc	ttc	2352
Ile	Ala	Leu	Asp	Pro	Tyr	Tyr	Tyr	Phe	Gln	Gln	Gly	Trp	Asn	Ile	Phe	
	770					775					780					
gac	agc	atc	atc	gtc	atc	ctt	agc	ctc	atg	gag	ctg	ggc	ctg	tcc	cgc	2400
Asp	Ser	Ile	Ile	Val	Ile	Leu	Ser	Leu	Met	Glu	Leu	Gly	Leu	Ser	Arg	
785					790					795					800	
atg	agc	aac	ttg	tcg	gtg	ctg	cgc	tcc	ttc	cgc	ctg	ctg	cgg	gtc	ttc	2448
Met	Ser	Asn	Leu	Ser	Val	Leu	Arg	Ser	Phe	Arg	Leu	Leu	Arg	Val	Phe	
				805					810					815		
aag	ctg	gcc	aaa	tca	tgg	ccc	acc	ctg	aac	aca	ctc	atc	aag	atc	atc	2496
Lys	Leu	Ala	Lys	Ser	Trp	Pro	Thr	Leu	Asn	Thr	Leu	Ile	Lys	Ile	Ile	
			820					825					830			
ggg	aac	tca	gtg	ggg	gca	ctg	ggg	aac	ctg	aca	ctg	gtg	cta	gcc	atc	2544
Gly	Asn	Ser	Val	Gly	Ala	Leu	Gly	Asn	Leu	Thr	Leu	Val	Leu	Ala	Ile	
			835				840					845				
atc	gtg	ttc	atc	ttt	gct	gtg	gtg	ggc	atg	cag	ctc	ttt	ggc	aag	aac	2592
Ile	Val	Phe	Ile	Phe	Ala	Val	Val	Gly	Met	Gln		Phe	Gly	Lys	Asn	
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tac	tcg	gag	ctg	agg	gac	agc	gac	tca	ggc	ctg	ctg	cct	cgc	tgg	cac	2640
Tyr	Ser	Glu	Leu	Arg	Asp	Ser	Asp	Ser	Gly	Leu	Leu	Pro	Arg	Trp	His	
865					870				875						880	
atg	atg	gac	ttc	ttt	cat	gcc	ttc	ctc	atc	atc	ttc	cgc	atc	ctc	tgt	2688
Met	Met	Asp	Phe	Phe	His	Ala	Phe	Leu	Ile	Ile	Phe	Arg	Ile	Leu	Cys	
				885					890					895		

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tca tta tgc ctg ctg gtc ttc ttg ctt gtt atg gtc att ggc aac ctt Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu 915 920 925	2784
gtg gtc ctg aat ctc ttc ctg gcc ttg ctg ctc agc tcc ttc agt gca Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ala 930 935 940	2832
gac aac ctc aca gcc cct gat gag gac aga gag atg aac aac ctc cag Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln 945 950 955 960	2880
ctg gcc ctg gcc cgc atc cag agg ggc ctg cgc ttt gtc aag cgg acc Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr 965 970 975	2928
acc tgg gat ttc tgc tgt ggt ctc ctg cgg cag cgg cct cag aag ccc Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro 980 985 990	2976
gca gcc ctt gcc gcc cag ggc cag ctg ccc agc tgc att gcc acc ccc Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro 995 1000 1005	3024
tac tcc ccg cca ccc cca gag acg gag aag gtg cct ccc acc cgc Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg 1010 1015 1020	3069
aag gaa aca cgg ttt gag gaa ggc gag caa cca ggc cag ggc acc Lys Glu Thr Arg Phe Glu Glu Gly Glu Gln Pro Gly Gln Gly Thr 1025 1030 1035	3114
ccc ggg gat cca gag ccc gtg tgt gtg ccc atc gct gtg gcc gag Pro Gly Asp Pro Glu Pro Val Cys Val Pro Ile Ala Val Ala Glu 1040 1045 1050	3159
tca gac aca gat gac caa gaa gaa gat gag gag aac agc ctg ggc Ser Asp Thr Asp Asp Gln Glu Glu Asp Glu Glu Asn Ser Leu Gly 1055 1060 1065	3204
acg gag gag gag tcc agc aag cag gaa tcc cag cct gtg tcc ggt Thr Glu Glu Glu Ser Ser Lys Gln Glu Ser Gln Pro Val Ser Gly 1070 1075 1080	3249
ggc cca gag gcc cct ccg gat tcc agg acc tgg agc cag gtg tca Gly Pro Glu Ala Pro Pro Asp Ser Arg Thr Trp Ser Gln Val Ser 1085 1090 1095	3294
gcg act gcc tcc tct gag gcc gag gcc agt gca tct cag gcc gac Ala Thr Ala Ser Ser Glu Ala Glu Ala Ser Ala Ser Gln Ala Asp 1100 1105 1110	3339
tgg cgg cag cag tgg aaa gcg gaa ccc cag gcc cca ggg tgc ggt Trp Arg Gln Gln Trp Lys Ala Glu Pro Gln Ala Pro Gly Cys Gly 1115 1120 1125	3384
gag acc cca gag gac agt tgc tcc gag ggc agc aca gca gac atg Glu Thr Pro Glu Asp Ser Cys Ser Glu Gly Ser Thr Ala Asp Met 1130 1135 1140	3429

acc aac	acc gct	gag ctc	ctg	gag cag	atc cct	gac	ctc ggc	cag	3474
Thr Asn	Thr Ala	Glu Leu	Leu	Glu Gln	Ile Pro	Asp	Leu Gly	Gln	
1145			1150			1155			
gat gtc	aag gac	cca gag	gac	tgc ttc	act gaa	ggc	tgt gtc	cgg	3519
Asp Val	Lys Asp	Pro Glu	Asp	Cys Phe	Thr Glu	Gly	Cys Val	Arg	
1160			1165			1170			
cgc tgt	ccc tgc	tgt gcg	gtg	gac acc	aca cag	gcc	cca ggg	aag	3564
Arg Cys	Pro Cys	Cys Ala	Val	Asp Thr	Thr Gln	Ala	Pro Gly	Lys	
1175			1180			1185			
gtc tgg	tgg cgg	ttg cgc	aag	acc tgc	tac cac	atc	gtg gag	cac	3609
Val Trp	Trp Arg	Leu Arg	Lys	Thr Cys	Tyr His	Ile	Val Glu	His	
1190			1195			1200			
agc tgg	ttc gag	aca ttc	atc	atc ttc	atg atc	cta	ctc agc	agt	3654
Ser Trp	Phe Glu	Thr Phe	Ile	Ile Phe	Met Ile	Leu	Leu Ser	Ser	
1205			1210			1215			
gga gcg	ctg gcc	ttc gag	gac	atc tac	cta gag	gag	cgg aag	acc	3699
Gly Ala	Leu Ala	Phe Glu	Asp	Ile Tyr	Leu Glu	Glu	Arg Lys	Thr	
1220			1225			1230			
atc aag	gtt ctg	ctt gag	tat	gcc gac	aag atg	ttc	aca tat	gtc	3744
Ile Lys	Val Leu	Leu Glu	Tyr	Ala Asp	Lys Met	Phe	Thr Tyr	Val	
1235			1240			1245			
ttc gtg	ctg gag	atg ctg	ctc	aag tgg	gtg gcc	tac	ggc ttc	aag	3789
Phe Val	Leu Glu	Met Leu	Leu	Lys Trp	Val Ala	Tyr	Gly Phe	Lys	
1250			1255			1260			
aag tac	ttc acc	aat gcc	tgg	tgc tgg	ctc gac	ttc	ctc atc	gta	3834
Lys Tyr	Phe Thr	Asn Ala	Trp	Cys Trp	Leu Asp	Phe	Leu Ile	Val	
1265			1270			1275			
gac gtc	tct ctg	gtc agc	ctg	gtg gcc	aac acc	ctg	ggc ttt	gcc	3879
Asp Val	Ser Leu	Val Ser	Leu	Val Ala	Asn Thr	Leu	Gly Phe	Ala	
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Glu Met	Gly Pro	Ile Lys	Ser	Leu Arg	Thr Leu	Arg	Ala Leu	Arg	
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cct ctg	aga gct	ctg tca	cga	ttt gag	ggc atg	agg	gtg gtg	gtc	3969
Pro Leu	Arg Ala	Leu Ser	Arg	Phe Glu	Gly Met	Arg	Val Val	Val	
1310			1315			1320			
aat gcc	ctg gtg	ggc gcc	atc	ccg tcc	atc atg	aac	gtc ctc	ctc	4014
Asn Ala	Leu Val	Gly Ala	Ile	Pro Ser	Ile Met	Asn	Val Leu	Leu	
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gtc tgc	ctc atc	ttc tgg	ctc	atc ttc	agc atc	atg	ggc gtg	aac	4059
Val Cys	Leu Ile	Phe Trp	Leu	Ile Phe	Ser Ile	Met	Gly Val	Asn	
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Leu Phe	Ala Gly	Lys Phe	Gly	Arg Cys	Ile Asn	Gln	Thr Glu	Gly	
1355			1360			1365			
gac ttg	cct ttg	aac tac	acc	atc gtg	aac aac	aag	agc cag	tgt	4149
Asp Leu	Pro Leu	Asn Tyr	Thr	Ile Val	Asn Asn	Lys	Ser Gln	Cys	

1370		1375		1380	
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Glu Ser Leu Asn Leu Thr Gly Glu Leu Tyr Trp Thr Lys Val Lys					
1385	1390	1395			
gtc aac ttt gac aac gtg ggg gcc ggg tac ctg gcc ctt ctg cag	4239				
Val Asn Phe Asp Asn Val Gly Ala Gly Tyr Leu Ala Leu Leu Gln					
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gtg gca aca ttt aaa ggc tgg atg gac att atg tat gca gct gtg	4284				
Val Ala Thr Phe Lys Gly Trp Met Asp Ile Met Tyr Ala Ala Val					
1415	1420	1425			
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Asp Ser Arg Gly Tyr Glu Glu Gln Pro Gln Trp Glu Tyr Asn Leu					
1430	1435	1440			
tac atg tac atc tat ttt gtc att ttc atc atc ttt ggg tct ttc	4374				
Tyr Met Tyr Ile Tyr Phe Val Ile Phe Ile Ile Phe Gly Ser Phe					
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ttc acc ctg aac ctc ttt att ggt gtc atc att gac aac ttc aac	4419				
Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile Asp Asn Phe Asn					
1460	1465	1470			
caa cag aag aaa aag tta ggg ggc cag gac atc ttc atg aca gag	4464				
Gln Gln Lys Lys Lys Leu Gly Gly Gln Asp Ile Phe Met Thr Glu					
1475	1480	1485			
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Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys					
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Lys Pro Gln Lys Pro Ile Pro Arg Pro Leu Asn Lys Tyr Gln Gly					
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Phe Ile Phe Asp Ile Val Thr Lys Gln Ala Phe Asp Val Thr Ile					
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Met Phe Leu Ile Cys Leu Asn Met Val Thr Met Met Val Glu Thr					
1535	1540	1545			
gat gac caa agt cct gag aaa atc aac atc ttg gcc aag atc aac	4689				
Asp Asp Gln Ser Pro Glu Lys Ile Asn Ile Leu Ala Lys Ile Asn					
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gct gcc ctg cgc cac tac tac ttc acc aac agc tgg aat atc ttc	4779				
Ala Ala Leu Arg His Tyr Tyr Phe Thr Asn Ser Trp Asn Ile Phe					
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Asp Phe Val Val Val Ile Leu Ser Ile Val Gly Thr Val Leu Ser					
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Ile	Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg	Leu	Ile	Arg	Gly	
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Ala	Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu	Met	Met	Ser	Leu	
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Ile	Tyr	Ser	Ile	Phe	Gly	Met	Ala	Asn	Phe	Ala	Tyr	Val	Lys	Trp	
1670						1675					1680				
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Glu	Ala	Gly	Ile	Asp	Asp	Met	Phe	Asn	Phe	Gln	Thr	Phe	Ala	Asn	
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Gly	Leu	Leu	Ser	Pro	Ile	Leu	Asn	Thr	Gly	Pro	Pro	Tyr	Cys	Asp	
1715						1720					1725				
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1730						1735					1740				
cca	gcc	gtg	ggc	atc	ctc	ttc	ttc	acc	acc	tac	atc	atc	atc	tcc	5274
Pro	Ala	Val	Gly	Ile	Leu	Phe	Phe	Thr	Thr	Tyr	Ile	Ile	Ile	Ser	
1745						1750					1755				
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Ala	Thr	Gln	Phe	Ile	Glu	Tyr	Ser	Val	Leu	Ser	Asp	Phe	Ala	Asp	
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Cys Met Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu	
1850 1855 1860	
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Ser Gly Glu Met Asp Ala Leu Lys Ile Gln Met Glu Glu Lys Phe	
1865 1870 1875	
atg gca gcc aac cca tcc aag atc tcc tac gag ccc atc acc acc	5679
Met Ala Ala Asn Pro Ser Lys Ile Ser Tyr Glu Pro Ile Thr Thr	
1880 1885 1890	
aca ctc cgg cgc aag cac gaa gag gtg tcg gcc atg gtt atc cag	5724
Thr Leu Arg Arg Lys His Glu Glu Val Ser Ala Met Val Ile Gln	
1895 1900 1905	
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Arg Ala Phe Arg Arg His Leu Leu Gln Arg Ser Leu Lys His Ala	
1910 1915 1920	
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1925 1930 1935	
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Asn Phe Ser Arg Pro Leu Gly Pro Pro Ser Ser Ser Ile Ser	
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Ser Thr Ser Phe Pro Pro Ser Tyr Asp Ser Val Thr Arg Ala Thr	
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<400> 8

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	50					55					60				
Pro	Asp	Leu	Tyr	Gly	Asn	Pro	Pro	Gln	Glu	Leu	Ile	Gly	Glu	Pro	Leu
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Glu	Asp	Leu	Asp	Pro	Phe	Tyr	Ser	Thr	Gln	Lys	Thr	Phe	Ile	Val	Leu
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Asn	Lys	Gly	Lys	Thr	Ile	Phe	Arg	Phe	Ser	Ala	Thr	Asn	Ala	Leu	Tyr
			100					105					110		
Val	Leu	Ser	Pro	Phe	His	Pro	Ile	Arg	Arg	Ala	Ala	Val	Lys	Ile	Leu
		115					120					125			
Val	His	Ser	Leu	Phe	Asn	Met	Leu	Ile	Met	Cys	Thr	Ile	Leu	Thr	Asn
	130					135					140				
Cys	Val	Phe	Met	Ala	Gln	His	Asp	Pro	Pro	Pro	Trp	Thr	Lys	Tyr	Val
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Glu	Tyr	Thr	Phe	Thr	Ala	Ile	Tyr	Thr	Phe	Glu	Ser	Leu	Val	Lys	Ile
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Leu	Ala	Arg	Gly	Phe	Cys	Leu	His	Ala	Phe	Thr	Phe	Leu	Arg	Asp	Pro
			180					185					190		
Trp	Asn	Trp	Leu	Asp	Phe	Ser	Val	Ile	Ile	Met	Ala	Tyr	Thr	Thr	Glu
		195					200					205			
Phe	Val	Asp	Leu	Gly	Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu
	210					215					220				
Arg	Ala	Leu	Lys	Thr	Ile	Ser	Val	Ile	Ser	Gly	Leu	Lys	Thr	Ile	Val
225					230					235					240
Gly	Ala	Leu	Ile	Gln	Ser	Val	Lys	Lys	Leu	Ala	Asp	Val	Met	Val	Leu
				245					250					255	
Thr	Val	Phe	Cys	Leu	Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe
			260					265					270		

Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn
275 280 285

Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu
290 295 300

Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr
305 310 315 320

Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro
325 330 335

Glu Gly Tyr Arg Cys Leu Lys Ala Gly Glu Asn Pro Asp His Gly Tyr
340 345 350

Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu
355 360 365

Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser
370 375 380

Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly
385 390 395 400

Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr
405 410 415

Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys
420 425 430

Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu
435 440 445

Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser
450 455 460

Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys
465 470 475 480

Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys
485 490 495

Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr
500 505 510

Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser

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530						535					540				
Asp	Asp	Glu	Asn	Ser	Thr	Ala	Gly	Glu	Ser	Glu	Ser	His	Arg	Thr	Ser
545					550					555					560
Leu	Leu	Val	Pro	Trp	Pro	Leu	Arg	Arg	Thr	Ser	Ala	Gln	Gly	Gln	Pro
				565					570					575	
Ser	Pro	Gly	Thr	Ser	Ala	Pro	Gly	His	Ala	Leu	His	Gly	Lys	Lys	Asn
			580					585					590		
Ser	Thr	Val	Asp	Cys	Asn	Gly	Val	Val	Ser	Leu	Leu	Gly	Ala	Gly	Asp
		595				600						605			
Pro	Glu	Ala	Thr	Ser	Pro	Gly	Ser	His	Leu	Leu	Arg	Pro	Val	Met	Leu
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625					630					635					640
Gln	Met	Leu	Thr	Ser	Gln	Ala	Pro	Cys	Val	Asp	Gly	Phe	Glu	Glu	Pro
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Gly	Ala	Arg	Gln	Arg	Ala	Leu	Ser	Ala	Val	Ser	Val	Leu	Thr	Ser	Ala
			660					665					670		
Leu	Glu	Glu	Leu	Glu	Glu	Ser	Arg	His	Lys	Cys	Pro	Pro	Cys	Trp	Asn
	675						680					685			
Arg	Leu	Ala	Gln	Arg	Tyr	Leu	Ile	Trp	Glu	Cys	Cys	Pro	Leu	Trp	Met
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Ser	Ile	Lys	Gln	Gly	Val	Lys	Leu	Val	Val	Met	Asp	Pro	Phe	Thr	Asp
705					710					715					720
Leu	Thr	Ile	Thr	Met	Cys	Ile	Val	Leu	Asn	Thr	Leu	Phe	Met	Ala	Leu
				725					730					735	
Glu	His	Tyr	Asn	Met	Thr	Ser	Glu	Phe	Glu	Glu	Met	Leu	Gln	Val	Gly
			740					745					750		
Asn	Leu	Val	Phe	Thr	Gly	Ile	Phe	Thr	Ala	Glu	Met	Thr	Phe	Lys	Ile
	755						760					765			

Ile Ala Leu Asp Pro Tyr Tyr Tyr Phe Gln Gln Gly Trp Asn Ile Phe
770 775 780

Asp Ser Ile Ile Val Ile Leu Ser Leu Met Glu Leu Gly Leu Ser Arg
785 790 795 800

Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe
805 810 815

Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile Ile
820 825 830

Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile
835 840 845

Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Asn
850 855 860

Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His
865 870 875 880

Met Met Asp Phe Phe His Ala Phe Leu Ile Ile Phe Arg Ile Leu Cys
885 890 895

Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln
900 905 910

Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu
915 920 925

Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ala
930 935 940

Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln
945 950 955 960

Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr
965 970 975

Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro
980 985 990

Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro
995 1000 1005

Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg
1010 1015 1020

Lys	Glu	Thr	Arg	Phe	Glu	Glu	Gly	Glu	Gln	Pro	Gly	Gln	Gly	Thr
1025						1030					1035			
Pro	Gly	Asp	Pro	Glu	Pro	Val	Cys	Val	Pro	Ile	Ala	Val	Ala	Glu
1040						1045					1050			
Ser	Asp	Thr	Asp	Asp	Gln	Glu	Glu	Asp	Glu	Glu	Asn	Ser	Leu	Gly
1055						1060					1065			
Thr	Glu	Glu	Glu	Ser	Ser	Lys	Gln	Glu	Ser	Gln	Pro	Val	Ser	Gly
1070						1075					1080			
Gly	Pro	Glu	Ala	Pro	Pro	Asp	Ser	Arg	Thr	Trp	Ser	Gln	Val	Ser
1085						1090					1095			
Ala	Thr	Ala	Ser	Ser	Glu	Ala	Glu	Ala	Ser	Ala	Ser	Gln	Ala	Asp
1100						1105					1110			
Trp	Arg	Gln	Gln	Trp	Lys	Ala	Glu	Pro	Gln	Ala	Pro	Gly	Cys	Gly
1115						1120					1125			
Glu	Thr	Pro	Glu	Asp	Ser	Cys	Ser	Glu	Gly	Ser	Thr	Ala	Asp	Met
1130						1135					1140			
Thr	Asn	Thr	Ala	Glu	Leu	Leu	Glu	Gln	Ile	Pro	Asp	Leu	Gly	Gln
1145						1150					1155			
Asp	Val	Lys	Asp	Pro	Glu	Asp	Cys	Phe	Thr	Glu	Gly	Cys	Val	Arg
1160						1165					1170			
Arg	Cys	Pro	Cys	Cys	Ala	Val	Asp	Thr	Thr	Gln	Ala	Pro	Gly	Lys
1175						1180					1185			
Val	Trp	Trp	Arg	Leu	Arg	Lys	Thr	Cys	Tyr	His	Ile	Val	Glu	His
1190						1195					1200			
Ser	Trp	Phe	Glu	Thr	Phe	Ile	Ile	Phe	Met	Ile	Leu	Leu	Ser	Ser
1205						1210					1215			
Gly	Ala	Leu	Ala	Phe	Glu	Asp	Ile	Tyr	Leu	Glu	Glu	Arg	Lys	Thr
1220						1225					1230			
Ile	Lys	Val	Leu	Leu	Glu	Tyr	Ala	Asp	Lys	Met	Phe	Thr	Tyr	Val
1235						1240					1245			
Phe	Val	Leu	Glu	Met	Leu	Leu	Lys	Trp	Val	Ala	Tyr	Gly	Phe	Lys
1250						1255					1260			

Lys	Tyr	Phe	Thr	Asn	Ala	Trp	Cys	Trp	Leu	Asp	Phe	Leu	Ile	Val
1265						1270					1275			
Asp	Val	Ser	Leu	Val	Ser	Leu	Val	Ala	Asn	Thr	Leu	Gly	Phe	Ala
1280						1285					1290			
Glu	Met	Gly	Pro	Ile	Lys	Ser	Leu	Arg	Thr	Leu	Arg	Ala	Leu	Arg
1295						1300					1305			
Pro	Leu	Arg	Ala	Leu	Ser	Arg	Phe	Glu	Gly	Met	Arg	Val	Val	Val
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Asn	Ala	Leu	Val	Gly	Ala	Ile	Pro	Ser	Ile	Met	Asn	Val	Leu	Leu
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1355						1360					1365			
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1370						1375					1380			
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1385						1390					1395			
Val	Asn	Phe	Asp	Asn	Val	Gly	Ala	Gly	Tyr	Leu	Ala	Leu	Leu	Gln
1400						1405					1410			
Val	Ala	Thr	Phe	Lys	Gly	Trp	Met	Asp	Ile	Met	Tyr	Ala	Ala	Val
1415						1420					1425			
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1430						1435					1440			
Tyr	Met	Tyr	Ile	Tyr	Phe	Val	Ile	Phe	Ile	Ile	Phe	Gly	Ser	Phe
1445						1450					1455			
Phe	Thr	Leu	Asn	Leu	Phe	Ile	Gly	Val	Ile	Ile	Asp	Asn	Phe	Asn
1460						1465					1470			
Gln	Gln	Lys	Lys	Lys	Leu	Gly	Gly	Gln	Asp	Ile	Phe	Met	Thr	Glu
1475						1480					1485			
Glu	Gln	Lys	Lys	Tyr	Tyr	Asn	Ala	Met	Lys	Lys	Leu	Gly	Ser	Lys

1490		1495		1500
Lys Pro Gln Lys Pro Ile	Pro Arg Pro Leu Asn	Lys Tyr Gln Gly		
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Phe Ile Phe Asp Ile Val	Thr Lys Gln Ala Phe Asp	Val Thr Ile		
1520	1525	1530		
Met Phe Leu Ile Cys Leu	Asn Met Val Thr Met Met	Val Glu Thr		
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Asp Asp Gln Ser Pro Glu	Lys Ile Asn Ile Leu Ala	Lys Ile Asn		
1550	1555	1560		
Leu Leu Phe Val Ala Ile	Phe Thr Gly Glu Cys Ile	Val Lys Leu		
1565	1570	1575		
Ala Ala Leu Arg His Tyr	Tyr Phe Thr Asn Ser Trp	Asn Ile Phe		
1580	1585	1590		
Asp Phe Val Val Val Ile	Leu Ser Ile Val Gly Thr	Val Leu Ser		
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Asp Ile Ile Gln Lys Tyr	Phe Phe Ser Pro Thr Leu	Phe Arg Val		
1610	1615	1620		
Ile Arg Leu Ala Arg Ile	Gly Arg Ile Leu Arg Leu	Ile Arg Gly		
1625	1630	1635		
Ala Lys Gly Ile Arg Thr	Leu Leu Phe Ala Leu Met	Met Ser Leu		
1640	1645	1650		
Pro Ala Leu Phe Asn Ile	Gly Leu Leu Leu Phe Leu	Val Met Phe		
1655	1660	1665		
Ile Tyr Ser Ile Phe Gly	Met Ala Asn Phe Ala Tyr	Val Lys Trp		
1670	1675	1680		
Glu Ala Gly Ile Asp Asp	Met Phe Asn Phe Gln Thr	Phe Ala Asn		
1685	1690	1695		
Ser Met Leu Cys Leu Phe	Gln Ile Thr Thr Ser Ala	Gly Trp Asp		
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Gly Leu Leu Ser Pro Ile	Leu Asn Thr Gly Pro Pro	Tyr Cys Asp		
1715	1720	1725		

Pro	Thr	Leu	Pro	Asn	Ser	Asn	Gly	Ser	Arg	Gly	Asp	Cys	Gly	Ser
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Pro	Ala	Val	Gly	Ile	Leu	Phe	Phe	Thr	Thr	Tyr	Ile	Ile	Ile	Ser
1745						1750					1755			
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1760						1765					1770			
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1775						1780					1785			
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1820						1825					1830			
Leu	Ile	Asn	Met	Asp	Leu	Pro	Met	Val	Ser	Gly	Asp	Arg	Ile	His
1835						1840					1845			
Cys	Met	Asp	Ile	Leu	Phe	Ala	Phe	Thr	Lys	Arg	Val	Leu	Gly	Glu
1850						1855					1860			
Ser	Gly	Glu	Met	Asp	Ala	Leu	Lys	Ile	Gln	Met	Glu	Glu	Lys	Phe
1865						1870					1875			
Met	Ala	Ala	Asn	Pro	Ser	Lys	Ile	Ser	Tyr	Glu	Pro	Ile	Thr	Thr
1880						1885					1890			
Thr	Leu	Arg	Arg	Lys	His	Glu	Glu	Val	Ser	Ala	Met	Val	Ile	Gln
1895						1900					1905			
Arg	Ala	Phe	Arg	Arg	His	Leu	Leu	Gln	Arg	Ser	Leu	Lys	His	Ala
1910						1915					1920			
Ser	Phe	Leu	Phe	Arg	Gln	Gln	Ala	Gly	Ser	Gly	Leu	Ser	Glu	Glu
1925						1930					1935			
Asp	Ala	Pro	Glu	Arg	Glu	Gly	Leu	Ile	Ala	Tyr	Val	Met	Ser	Glu
1940						1945					1950			
Asn	Phe	Ser	Arg	Pro	Leu	Gly	Pro	Pro	Ser	Ser	Ser	Ser	Ile	Ser
1955						1960					1965			

Ser Thr Ser Phe Pro Pro Ser Tyr Asp Ser Val Thr Arg Ala Thr
 1970 1975 1980

Ser Asp Asn Leu Gln Val Arg Gly Ser Asp Tyr Ser His Ser Glu
 1985 1990 1995

Asp Leu Ala Asp Phe Pro Pro Ser Pro Asp Arg Asp Arg Glu Ser
 2000 2005 2010

Ile Val
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23

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21

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22

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22

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31

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 Trp Ala Arg Arg Glu Ser Ser Lys Gln Glu Ser Gln Pro Val Ser
 1 5 10 15

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